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STATE OF COLORADO

## COLORADO DEPARTMENT OF HEALTH

4210 East 71th Avenue  
Denver, Colorado 80220  
Phone (303) 320-8333



HAND DELIVERED

000025645

June 7, 1989

Mr. Ed S. Goldberg, Area Manager  
U. S. Department of Energy  
Rocky Flats Area Office  
P.O. Box 928  
Golden, Colorado 80402-0928

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Roy Romer  
Governor

Thomas M. Vernon, M.D.  
Executive Director

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Dear Mr. Goldberg:

You are hereby served with Compliance Order No. 89-06-07-01 issued by the Hazardous Materials and Waste Management Division ("the Division") of the Colorado Department of Health pursuant to Section 25-15-308 (2), C.R.S. (1982). This Order is based upon findings by the Division that you have violated the Colorado Hazardous Waste Act, Sections 25-15-301 through 313, C.R.S. (1982 and 1988 Supp.) ("the Act"), as more particularly described in the enclosed Compliance Order.

Please understand that the Division will meet with you at your request within twenty (20) calendar days after your receipt of this Order to discuss the Order and receive any evidence or arguments you may have concerning the existence and gravity of the violations. I urge you to take advantage of the opportunity to discuss this matter with the Division. If you do not request a meeting within ten (10) calendar days of receipt of this Order, the enclosed Compliance Order will become effective immediately.

The violations cited in the Order are the result of inspections and reviews conducted from June 1988 through January 11, 1989. We have discussed the findings of these evaluations with your staff in inspection close-outs and other meetings as well as in our letters of July 19 and December 15, 1988, and January 6, 1989. This order serves as the formal action to resolve these compliance issues.

We have thoroughly reviewed the information in your March 10, 1989 letter which addresses many of the violation observed during recent inspections. Your letter attempts to refute many of the violations while admitting others. This Order includes all of the violations noted in our January 6, 1989 letter because we do not feel that the information presented in your March 10 is sufficient to vacate any of them. I suggest that you be prepared to discuss all of the violations at the informal conference along with any corrective actions that you have taken. It is our hope and expectation that as a result of our previous communications, that many of the violations have been corrected. If information you present at the informal conference justifies changes to the compliance order, we will make necessary amendments.

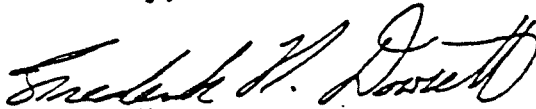
Ed S. Goldberg, Area Manager  
Rocky Flats Area Office  
Page Two

This letter also serves as notice that the Division intends to seek a civil penalty from you in this matter as authorized by Sections 25-5-308 and 309 of the Act. The amount of the penalty will be influenced by a variety of factors including the seriousness of the violations and the potential for harm resulting from the violations. A copy of the penalty policy used by the Division will be made available to you upon request. The Act authorizes the Division to seek penalties of up to \$25,000 for each day of each violation of the Act, the regulations implementing the Act, or the enclosed Order.

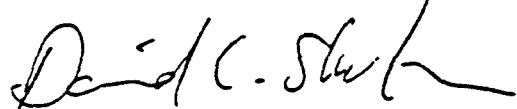
Should you desire to schedule a meeting or to discuss the technical aspects of this matter, you may call me at the Division (telephone (303) 331-4830). If you have retained legal counsel, he or she may contact David Kopel at the Colorado Attorney General's Office (telephone (303) 866-5058 to discuss legal aspects of the case.

I urge you to give this matter your immediate attention.

Sincerely,



Frederick R. Dowsett, Unit Leader  
Monitoring & Enforcement  
Hazardous Materials &  
Waste Management Division



David C. Shelton, Director  
Hazardous Materials &  
Waste Management Division

Enclosure: Compliance Order # 89-06-07-01

cc w/encl: Charlie Brinkman, EPA  
David Kopel, AGO  
Donna Perla, EPA

FRD:FN/cal  
4393K:19-20

BEFORE THE HAZARDOUS MATERIALS AND WASTE MANAGEMENT DIVISION  
DEPARTMENT OF HEALTH  
STATE OF COLORADO



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COMPLIANCE ORDER NO. 89-06-07-01

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IN THE MATTER OF U.S. DOE - ROCKY FLATS PLANT

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This Compliance Order is being issued by the Colorado Department of Health through the Hazardous Materials and Waste Management Division ("the Department") to the United States Department of Energy ("DOE") and Rockwell International Corporation ("Rockwell") pursuant to the Department's authority under Section 25-15-308, C.R.S. (1982 and 1988 Supp.).

General Findings

1. The Rocky Flats Plant is part of an integrated system of Federally-owned laboratories and plants operated pursuant to the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974, and the Department of Energy Organization Act, to develop and produce nuclear weapons for the national defense. The principal function of the Rocky Flats Plant is to produce certain nuclear components for those weapons. As part of its operations, the Plant generates hazardous waste and radioactive mixed waste.
2. The Rocky Flats Plant is owned by the United States and is under the custody of and controlled by DOE, an agency of the Federal Government.
3. Rockwell, a Delaware corporation doing business in Colorado, is under contract to DOE and is the operator of the Rocky Flats Plant.
4. On or about August 18, 1980, Rockwell and DOE submitted a notification of hazardous waste activity to the U.S. Environmental Protection Agency ("EPA"). Rockwell and DOE identified themselves as a generator, treater, storer, and/or disposer of hazardous waste at the facility.
5. On or about November 14, 1980, Rockwell and DOE submitted a Part A application to EPA, in accordance with the provisions of the Federal Resource Conservation and Recovery Act of 1976, 42 U.S.C. 6925(e), requesting interim status for the storage, treatment, and disposal of hazardous waste.
6. On October 19, 1984, EPA pursuant to 42 U.S.C. 6926 authorized the Department to administer a hazardous waste program in Colorado in lieu of EPA. The authorization was effective on November 2, 1984.

7. On or about November 1, 1985, Rockwell and DOE submitted Part A and Part B permit applications to the Department. These applications included certain hazardous wastes, but did not include radioactive mixed waste streams or units.
8. On or about November 8, 1985, Rockwell and DOE submitted Part A and Part B permit applications to EPA. These applications included handling of certain radioactive mixed wastes.
9. On July 31, 1986, DOE entered into a Compliance Agreement with the Department and EPA. This agreement required that DOE, among other things, demonstrate compliance with 6 CCR 1007-3, Parts 99, 100, 262, and 265 by November 28, 1986.
10. On October 24, 1986, EPA pursuant to 42 U.S.C. 6926 authorized the Department to regulate mixed radioactive and hazardous waste. The authorization was effective on November 7, 1986.
11. On or about November 5, 1986, Rockwell and DOE submitted a Part A application to the EPA. This application included a request for changes in waste handling operations.
12. On or about November 26, 1986, Rockwell and DOE submitted Part A and Part B applications to the Department. These applications included both hazardous waste and mixed waste and a request for changes in waste handling operations.
13. On January 29, 1987 the Department approved the November 1986 request for changes in waste handling operations in a letter to Rocky Flats. The letter specifies that Rocky Flats may store only "pond crete" and "salt crete" in Building 964 but no other hazardous waste.
14. On May 26 through May 29, 1987, Department inspectors visited the facility to determine compliance with Colorado hazardous waste regulations (6 CCR 1007-3) and the July 31, 1986 Compliance Agreement.
15. On May 5, 1988, the Department issued a Compliance Order to Rockwell and DOE concerning violations observed during the May 26 through 29, 1987 inspections.
16. On June 13 through 15 and on June 17, 1988, Department inspectors visited the facility to determine compliance with Colorado hazardous waste regulations, the July 31, 1986 Compliance Agreement, and the May 5, 1988 Compliance Order.
17. On or about March 31, 1988, Rockwell and DOE submitted to the Department an annual ground-water monitoring report entitled "Ground-Water Monitoring at Regulated Units." This report contained information concerning ground-water monitoring during 1987 at the solar ponds, the west spray field, and the present landfill.

18. On November 3, 4, and 17, 1988, December 2, 6, 16, 1988 and January 11, 1989, Department inspectors visited the facility to determine compliance with Colorado hazardous waste regulations, the July 31, 1986 Compliance Agreement, and the May 5, 1988 Compliance Order.

First and Second Violations  
(Inadequate Monitoring System At The Solar Ponds)

19. The General Findings set forth in paragraphs 1 through 18 of this Compliance Order are incorporated by reference as though fully set forth herein.

Findings of Fact

20. The November 26, 1986 Part A application listed the solar ponds as a hazardous waste management unit which includes five separate surface impoundments.
21. Ground-water monitoring at the solar ponds is being conducted according to the requirements of 6 CCR 1007-3, Section 265.93(d) for a ground-water quality assessment program.
22. The alluvial aquifer beneath the solar ponds is the geologic formation nearest the ground surface that is an aquifer.
23. The bedrock aquifer of the Arapahoe Formation is hydraulically interconnected with the alluvial aquifer at the solar ponds.
24. The bedrock monitoring wells designated as background wells for the solar ponds do not monitor the same geologic unit as downgradient bedrock wells for the solar ponds.
25. Three downgradient alluvial wells at the solar ponds were dry during sampling in 1987.
26. The three upgradient alluvial wells at the solar ponds were dry, contained contaminated ground water, or were not sampled in 1987.

Conclusions of Law

27. 6 CCR 1007-3, Section 260.10 defines "uppermost aquifer" as "the geologic formation nearest the ground surface that is an aquifer, as well as lower aquifers that are hydraulically interconnected with this aquifer within the facility's property boundary."
28. Under 6 CCR 1007-3, Section 260.10, the "uppermost aquifer" beneath the solar ponds includes the bedrock aquifer of the Arapahoe Formation.

29. 6 CCR 1007-3, Section 265.90(a) requires that "an owner or operator of a surface impoundment, landfill, or land treatment facility which is used to manage hazardous waste must implement a ground-water monitoring program capable of determining the facility's impact on the quality of the ground water in the uppermost aquifer underlying the facility."
30. Because the facility's background bedrock monitoring wells are not monitoring the same bedrock geologic unit as wells downgradient of the solar ponds, the facility's ground-water monitoring program is not capable of determining the facility's impact on the quality of groundwater in the uppermost aquifer beneath the unit. This constitutes violation of 6 CCR 1007-3, Section 265.90(a) and the July 31, 1986 Compliance Agreement.
31. Because dry wells are not capable of yielding ground water samples for analysis, and because such samples are necessary to determine the impact of the solar ponds on the quality of ground water, the facility's ground-water monitoring program is not capable of determining the facility's impact on the quality of ground-water in the uppermost aquifer beneath the unit. This constitutes violation of 6 CCR 1007-3, Section 265.90(a) and the July 31, 1986 Compliance Agreement.

Third Violation

(Inadequate Monitoring System At The West Spray Field)

32. The General Findings, Findings of Fact and Conclusions of Law set forth in paragraphs 1 through 31 of this Compliance Order are incorporated by reference as though fully set forth herein.

Findings of Fact

33. The November 26, 1986 Part A application listed the west spray field as a hazardous waste land treatment unit.
34. Ground-water monitoring at the west spray field unit is being conducted under 6 CCR 1007-3, Section 265.90(d) for an alternate ground-water monitoring program subject to the requirements of 6 CCR 1007-3, Part 265, Subpart F.
35. The March 1988 annual ground-water monitoring report indicates the ground-water monitoring system for the west spray field consists of one upgradient well and four downgradient wells.
36. Only one of the downgradient wells is located to collect ground water flowing under the west spray field.

Conclusions of Law

37. One downgradient well located to collect ground-water flowing under the west spray field is not sufficient to determine the impact of the west spray field on the quality of ground-water beneath the unit and, therefore, constitutes violation of 6 CCR 1007-3, Section 265.90(a) and the July 31, 1986 Compliance Agreement.

Fourth and Fifth Violations

(Inadequate Monitoring System At The Present Landfill)

38. The General Findings, Findings of Fact and Conclusions of Law set forth in paragraphs 1 through 37 of this Compliance Order are incorporated by reference as though fully set forth herein.

Findings of Fact

39. The November 26, 1986 Part A application listed the present landfill as a hazardous waste management unit.
40. Ground-water monitoring at the present landfill unit is being conducted under 6 CCR 1007-3, Section 265.90(d) for an alternate ground-water monitoring program.
41. The alluvial aquifer is the geologic formation nearest the ground surface that is an aquifer at the present landfill.
42. The bedrock aquifer of the Arapahoe Formation is hydraulically interconnected with the alluvial aquifer at the present landfill.
43. According to the March 1988 annual ground-water monitoring report, the alluvial ground-water system designated for the present landfill consists of two upgradient and thirteen downgradient monitoring wells. Nine downgradient wells are located within the boundaries of the landfill.
44. Twelve of the downgradient alluvial wells at the present landfill were installed during 1987.
45. No sampling events were reported for eight of the alluvial downgradient wells during 1987.
46. Three of the alluvial downgradient wells at the present landfill for which sampling events were reported in 1987 were dry during at least one of the sampling events.
47. The bedrock ground-water monitoring system at the present landfill consists of one upgradient well and two downgradient wells.
48. The construction logs for one of the downgradient bedrock wells indicate that it is probably hydraulically connected to the pond at the present landfill.

Conclusions of Law

49. Because dry wells are not capable of yielding ground-water samples for analysis and such samples are necessary to determine the impact of the landfill on the quality of ground water, Rocky Flat's ground-water monitoring program is not capable of determining the facility's impact on the quality of ground water in the uppermost aquifer beneath the unit. This is a violation of 6 CCR 1007-3, Section 265.90(a) and the July 31, 1986 Compliance Agreement.
50. Two downgradient bedrock wells are not an adequate number to determine the impact of the present landfill on the quality of ground water in the bedrock aquifer beneath the unit. Rocky Flat's failure to install a sufficient number of downgradient bedrock wells at the present landfill constitutes violation of 6 CCR 1007-3, Section 265.90(a) and the July 31, 1986 Compliance Agreement.

Sixth through Eighth Violations  
(Inadequate Ground-Water Quality Assessment)

51. The General Findings, Findings of Fact and Conclusions of Law set forth in paragraphs 1 through 50 of this Compliance Order are incorporated by reference as though fully set forth herein.

Findings of Fact

52. Volatile organic compounds were found at elevated concentrations in four alluvial wells and three bedrock wells at the solar ponds in one or more quarters of sampling in 1987. These elevated concentrations were not evaluated in the annual report.
53. Seasonal changes in ground-water flow directions at the west spray field, present landfill and solar ponds were not evaluated in the annual report.
54. The rate and extent of migration of hazardous waste or hazardous waste constitutes in the bedrock aquifers at the solar ponds and present landfill were not evaluated in the annual report.

Conclusions of Law

55. 6 CCR 1007-3, Section 265.94(b)(1) requires the owner or operator of a facility whose ground water is monitored to satisfy the requirements of Section 265.93(d)(4) to annually report the results of his ground-water quality assessment program to the Department.
56. 6 CCR 1007-3, Section 265.90(d)(2) requires an owner or operator who uses an alternate ground-water monitoring system to make determinations specified in Section 265.93(d)(4).

57. 6 CCR 1007-3, Section 265.93(d)(4) requires that the owner or operator determine whether hazardous waste or hazardous waste constituents have entered ground water, the rate and extent of migration of the constituents, and the concentrations of hazardous wastes or hazardous waste constituents in ground water.
58. The facility's failure to evaluate the elevated concentrations of volatile organic compounds in ground water at the solar ponds constitutes violation of 6 CCR 1007-3, Section 265.93(d)(4) and the July 31, 1986 Compliance Agreement.
59. The facility's failure to evaluate the seasonal changes in ground-water flow directions at the west spray field, present landfill, and solar ponds constitutes violation of 6 CCR 1007-3, Section 265.93(d)(4) and the July 31, 1986 Compliance Agreement.
60. The facility's failure to evaluate the rate and extent of migration of hazardous waste or hazardous waste constituents in the bedrock aquifers at the solar ponds and present landfill constitutes violation of 6 CCR 1007-3, Section 265.93(d)(4) and the July 31, 1986 Compliance Agreement.

Ninth through Eleventh Violations

(Failure To Make Quarterly Determinations)

61. The General Findings, Findings of Fact and Conclusions of Law set forth in paragraphs 1 through 60 of this Compliance Order are incorporated by reference as though fully set forth herein.

Findings of Fact

62. Monitoring wells at the solar ponds were not sampled on a quarterly basis in 1987.
63. Monitoring wells at the west spray field were not sampled on a quarterly basis in 1987.
64. No downgradient wells at the present landfill were analyzed for all parameters required by the sampling and analysis plan during any sampling event in 1987.
65. Monitoring wells at the present landfill were not sampled on a quarterly basis in 1987.

Conclusions of Law

66. 6 CCR 1007-3, Section 265.93(d)(7) states that if an owner or operator decides to use an alternate ground-water monitoring system, he must continue to make the determination required by Section 265.93(d)(4).

67. Quarterly determination of rate and extent of migration and of concentrations of hazardous waste and hazardous waste constituents pursuant to 6 CCR 1007-3, Section 265.93(d)(4) cannot be made without collection of ground-water samples on a quarterly basis.
68. The facility's failure to make quarterly determinations at the west spray field is a violation of 6 CCR 1007-3, Section 265.93(d)(4) and the July 31, 1986 Compliance Agreement.
69. The facility's failure to make quarterly determinations at the present landfill constitutes violation of 6 CCR 1007-3, Section 265.93(d)(4) and the July 31, 1986 Compliance Agreement.
70. The facility's failure to make quarterly determinations at the solar ponds constitutes violation of 6 CCR 1007-3, Section 265.93(d)(7) and the July 31, 1986 Compliance Agreement.

Twelfth Violation

(Storage Without A Permit Or Interim Status)

71. The General Findings, Findings of Fact and Conclusions of Law set forth in paragraphs 1 through 70 of this Compliance Order are incorporated by reference as though fully set forth herein.

Findings of Fact

72. During the June 1988 inspection, Department inspectors observed that 868 drums of vacuum filter sludge identified as a mixed waste by the facility were being stored in Building 964.
73. In the January 29, 1987 letter the Department approved of Rocky Flat's request to store "pond crete" and "salt crete" in Building 964 but no other hazardous wastes.

Conclusions of Law

74. 6 CCR 1007-3, Section 100.11(d) states that "(1) persons who have filed Part A of their permit application and have interim status for the treatment storage, or disposal of hazardous waste identified or listed in Part 261 are required to inform the Director of any changes in their facility or operation which require modification of the information contained in their Part A application." This section further states that "(2) the following changes require prior approval by the Director ... (iii) significant changes in the processes or additional processes used to treat, store, or dispose of hazardous waste."